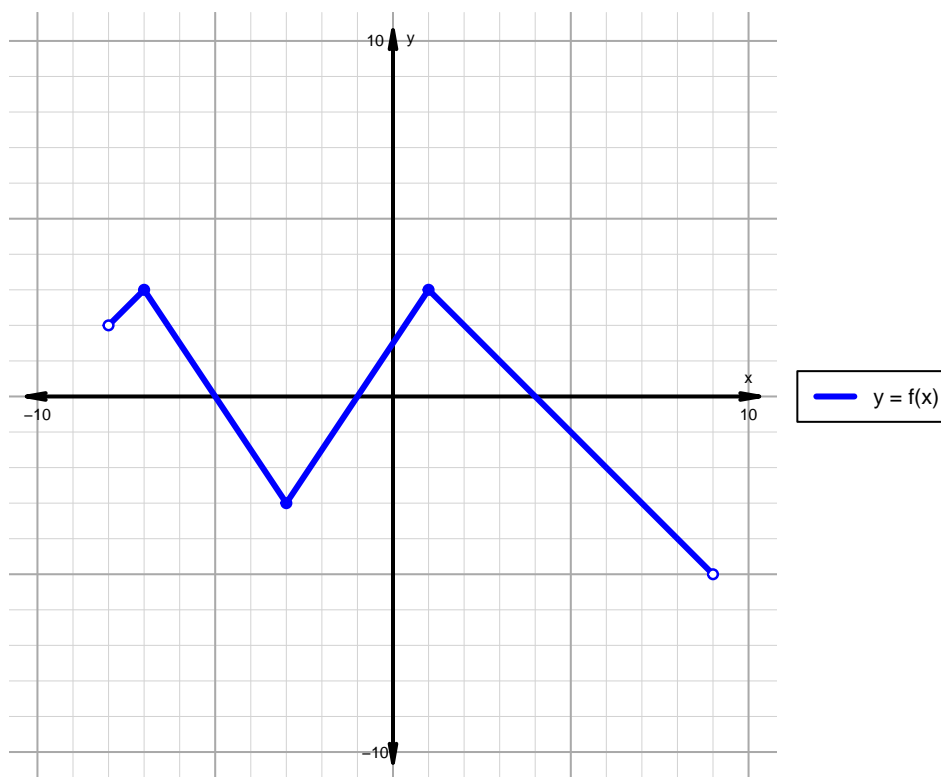Name: _____   Date: _____

Intervals, Transformations, and Slope Solution (version 35)

1. The function f is graphed below.

Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-8, -5) \cup (-1, 4)$
Negative	$(-5, -1) \cup (4, 9)$
Increasing	$(-8, -7) \cup (-3, 1)$
Decreasing	$(-7, -3) \cup (1, 9)$
Domain	$(-8, 9)$
Range	$(-5, 3)$

Intervals, Transformations, and Slope Solution (version 35)

2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = f(2 \cdot x)$

$y = f(x + 2)$

$y = f(x) - 2$

$y = 2 \cdot f(x)$
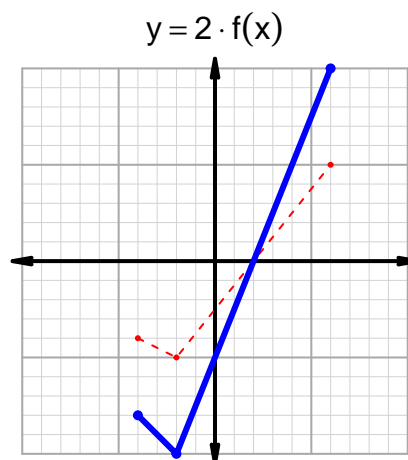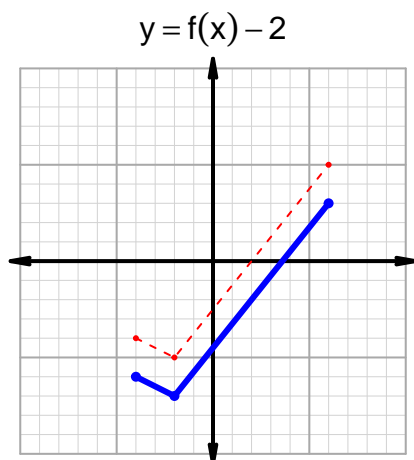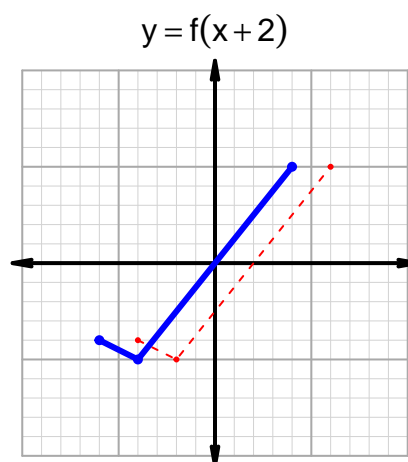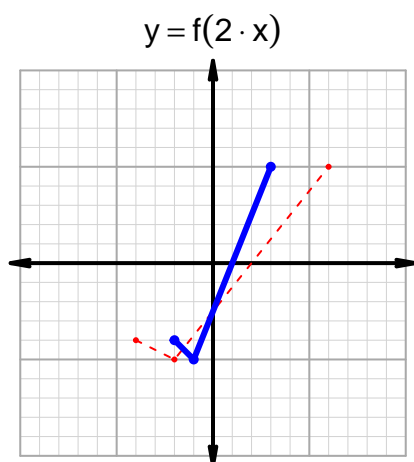
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 32$ and $x_2 = 40$. Express your answer as a reduced fraction.

x	$g(x)$
32	36
36	40
40	48
48	32

$\frac{f(40) - f(32)}{40 - 32} = \frac{48 - 36}{40 - 32} = \frac{12}{8}$

The greatest common factor of 12 and 8 is 4. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{3}{2}$$